

09/931325

FILE 'REGISTRY' ENTERED AT 15:18:59 ON 06 DEC 2002

L1 42 SEA ABB=ON PLU=ON NANPNVDPNANPNANPNANP|IEYLNKIQNSLSTEWS  
PCSVT|EYLNKIQNSLSTEWSPCSVT/SQSP

FILE 'HCAPLUS' ENTERED AT 15:21:50 ON 06 DEC 2002

L2 30 SEA ABB=ON PLU=ON L1  
L3 22 SEA ABB=ON PLU=ON L2 AND MALARIA#

L3 ANSWER 1 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:752116 HCAPLUS

DOCUMENT NUMBER: 137:289735

TITLE: Sequence of Plasmodium falciparum chromosomes 1, 3-9 and 13

AUTHOR(S): Hall, N.; Pain, A.; Berriman, M.; Churcher, C.;  
Harris, B.; Harris, D.; Mungall, K.; Bowman, S.;  
Atkin, R.; Baker, S.; Barron, A.; Brooks, K.;  
Buckee, C. O.; Burrows, C.; Cherevach, I.;  
Chillingworth, C.; Chillingworth, T.;  
Christodoulou, Z.; Clark, L.; Clark, R.; Corton,  
C.; Cronin, A.; Davies, R.; Davis, P.; Dear, P.;  
Dearden, F.; Doggett, J.; Feltwell, T.; Goble,  
A.; Goodhead, I.; Gwilliam, R.; Hamlin, N.;  
Hance, Z.; Harper, D.; Hauser, H.; Hornsby, T.;  
Holroyd, S.; Horrocks, P.; Humphray, S.; Jagels,  
K.; James, K. D.; Johnson, D.; Kerhornou, A.;  
Knights, A.; Konfortov, B.; Kyes, S.; Larke, N.;  
Lawson, D.; Lennard, N.; Line, A.; Maddison, M.;  
McLean, J.; Mooney, P.; Moule, S.; Murphy, L.;  
Oliver, K.; Ormond, D.; Price, C.; Quail, M. A.;  
Rabbinowitsch, E.; Rajandream, M.-A.; Rutter,  
S.; Rutherford, K. M.; Sanders, M.; Simmonds,  
M.; Seeger, K.; Sharp, S.; Smith, R.; Squares,  
R.; Squares, S.; Stevens, K.; Taylor, K.; Tivey,  
A.; Unwin, L.; Whitehead, S.; Woodward, J.;  
Sulston, J. E.; Craig, A.; Newbold, C.; Barrell,  
B. G.

CORPORATE SOURCE: The Wellcome Trust Sanger Institute, Hinxton,  
Cambridge, CB10 1SA, UKSOURCE: Nature (London, United Kingdom) (2002),  
419(6906), 527-531

CODEN: NATUAS; ISSN: 0028-0836

PUBLISHER: Nature Publishing Group

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Since the sequencing of the first two chromosomes of the  
**malaria** parasite, Plasmodium falciparum, there has been a  
concerted effort to sequence and assemble the entire genome of this  
organism. This report provides the sequence of chromosomes 1, 3-9  
and 13 of P. falciparum clone 3D7; these chromosomes account for  
.apprx.55% of the total genome. The methods used to map, sequence  
and annotate these chromosomes is described. By comparing these  
assemblies with the optical map, the completeness of the resulting  
sequence is indicated. During annotation, Gene Ontol. terms were  
assigned to the predicted gene products, and clustering of some  
**malaria**-specific terms to specific chromosomes was obsd. A  
highly conserved sequence element was found in the intergenic region  
of internal var genes that is not assocd. with their telomeric  
counterparts.

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IT 467522-97-0

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study)

(amino acid sequence; sequence of Plasmodium falciparum chromosomes 1, 3-9 and 13)

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 2 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:142851 HCAPLUS

DOCUMENT NUMBER: 136:215388

TITLE: Immunogenic hepatitis B nucleocapsid protein (HBc) chimeric particles having enhanced stability

INVENTOR(S): Birkett, Ashley J.

PATENT ASSIGNEE(S): Apovia, Inc., USA

SOURCE: PCT Int. Appl., 290 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002014478	A2	20020221	WO 2001-US41759	20010816
W:	AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, MZ, NO, NZ, PL, RO, SG, SI, SK, TT, UA, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2001085452	A5	20020225	AU 2001-85452	20010816
PRIORITY APPLN. INFO.:			US 2000-225843P	P 20000816
			US 2000-226867P	P 20000822
			US 2001-930915	A 20010815
			WO 2001-US41759	W 20010816

AB A chimeric, carboxy-terminal truncated hepatitis B virus nucleocapsid protein (core protein or HBc) is disclosed that is engineered for both enhanced stability of self-assembled particles and the display of an immunogenic epitope. The immunogenic epitope is a B cell epitope or T cell epitope derived from pathogen such as Streptococcus pneumonia, Cryptosporidium parvum, HIV, foot and mouth disease virus, influenza virus, Yersinia pestia, etc. The display of the immunogenic epitope is displayed in the immunogenic loop of HBc, whereas the enhanced stability of self-assembled particles is obtained by the presence of at least one heterologous cysteine residue near the carboxy-terminus of the chimera mol. Methods of making and using the chimeras are also disclosed.

IT 401552-42-9P

RL: BPN (Biosynthetic preparation); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(amino acid sequence; chimeric proteins comprising HBcAg and T

Searcher : Shears 308-4994

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and/or B cell epitope for use as vaccines)

IT 151113-09-6 401460-26-2 401460-27-3  
401460-29-5 401460-48-8 401460-49-9  
401460-60-4 401461-03-8  
RL: BSU (Biological study, unclassified); PRP (Properties); THU  
(Therapeutic use); BIOL (Biological study); USES (Uses)  
(chimeric proteins comprising HBcAg and T and/or B cell epitope  
for use as vaccines)

IT 401556-50-1  
RL: PRP (Properties)  
(unclaimed nucleotide sequence; immunogenic hepatitis B  
nucleocapsid protein (HBc) chimeric particles having enhanced  
stability)

IT 401556-53-4  
RL: PRP (Properties)  
(unclaimed protein sequence; immunogenic hepatitis B nucleocapsid  
protein (HBc) chimeric particles having enhanced stability)

L3 ANSWER 3 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2002:142465 HCAPLUS

DOCUMENT NUMBER: 136:198912

TITLE: **Malaria** vaccines comprise Plasmodium  
CS protein and truncated hepatitis B virus  
nucleocapsid protein or HBcAg

INVENTOR(S): Birkett, Ashley J.

PATENT ASSIGNEE(S): Apovia, Inc., USA

SOURCE: PCT Int. Appl., 197 pp.

CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002013765	A2	20020221	WO 2001-US25625	20010816
W:	AE, AG, AL, AU, BA, BB, BG, BR, BZ, CA, CN, CO, CR, CU, CZ, DM, DZ, EE, GD, GE, HR, HU, ID, IL, IN, IS, JP, KP, KR, LC, LK, LR, LT, LV, MA, MG, MK, MN, MX, MZ, NO, NZ, PL, RO, SG, SI, SK, TT, UA, UZ, VN, YU, ZA, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
AU 2001084967	A5	20020225	AU 2001-84967	20010816
PRIORITY APPLN. INFO.:			US 2000-225813P P	20000816
			US 2001-931325 A	20010815
			WO 2001-US25625 W	20010816

AB A chimeric, carboxy-terminal truncated hepatitis B virus nucleocapsid protein (HBc) is disclosed that contains an immunogen for inducing the prodn. of antibodies to **malarial** proteins. An immunogenic **malarial** epitope is expressed between residues 78 and 79 of the HBc immunogenic loop sequence. The chimera preferably contains a **malaria**-specific T cell epitope and is preferably engineered for both enhanced stability of self-assembled particles and enhanced yield of those chimeric particles. Methods of making and using the chimera are also

Searcher : Shears 308-4994

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disclosed.

IT 151113-09-6 401460-26-2 401460-27-3  
401460-29-5 401460-45-5

RL: BSU (Biological study, unclassified); PRP (Properties); THU  
(Therapeutic use); BIOL (Biological study); USES (Uses)  
(antimalarial vaccines comprise Plasmodium CS protein and  
truncated hepatitis B virus nucleocapsid protein or HBcAg)

IT 401460-48-8 401460-49-9 401460-60-4  
401461-03-8

RL: PRP (Properties)  
(unclaimed sequence; **malaria** vaccines comprise  
Plasmodium CS protein and truncated hepatitis B virus  
nucleocapsid protein or HBcAg)

L3 ANSWER 4 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:900440 HCAPLUS

DOCUMENT NUMBER: 137:92286

TITLE: Conversion of poorly immunogenic **malaria**  
repeat sequences into a highly immunogenic  
vaccine candidate

AUTHOR(S): Milich, David R.; Hughes, Janice; Jones, Joyce;  
Sallberg, Matti; Phillips, Tom R.

CORPORATE SOURCE: Vaccine Research Institute of San Diego (VRISD),  
San Diego, CA, 92121, USA

SOURCE: Vaccine (2001), 20(5-6), 771-788

CODEN: VACCDE; ISSN: 0264-410X

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The recent success of a Plasmodium falciparum **malaria**  
vaccine consisting of circumsporozoite protein (CSP) T and B cell  
epitopes has rekindled interest in the development of a  
pre-erythrocytic vaccine. In order to optimize immunogenicity,  
well-characterized CSP-specific neutralizing B cell epitopes and a  
universal T cell epitope were combined with an efficient and  
flexible particulate carrier platform, the hepatitis B core antigen  
(HBcAg), to produce a novel pre-erythrocytic vaccine candidate. The  
vaccine candidate, V12.PF3.1, is a potent immunogen in mice  
eliciting unprecedented levels (greater than 10<sup>6</sup> titers) of  
sporozoite-binding antibodies after only two doses. The  
anti-sporozoite antibodies are long lasting, represent all IgG  
isotypes, and antibody prodn. is not genetically restricted.  
CSP-specific CD4<sup>+</sup> T cells are also primed by V12.PF3.1 immunization  
in a majority of murine strains. Furthermore, the hybrid HBcAg-CS  
particles can be produced inexpensively in bacterial expression  
systems. These and other characteristics suggest that V12.PF3.1  
represents an efficient and economical P. falciparum vaccine  
candidate for use sep. or in combination with other formulations.

IT 401460-27-3

RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)  
(immunogenic **malaria** repeat sequences combined with  
HBcAg in development of highly immunogenic vaccine)

REFERENCE COUNT: 71 THERE ARE 71 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L3 ANSWER 5 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:647507 HCAPLUS

Searcher : Shears 308-4994

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DOCUMENT NUMBER: 136:289638  
TITLE: Molecular cloning and sequencing of the  
circumsporozoite protein gene from Plasmodium  
falciparum strain FCC-1/HN and expression of the  
gene in mycobacteria  
AUTHOR(S): Zheng, Chunfu; Xie, Peimei; Chen, Yatang  
CORPORATE SOURCE: Institute of Infectious and Parasitic Diseases,  
The First Affiliated Hospital of Chongqing  
Medical University, Chungking, 400016, Peop.  
Rep. China  
SOURCE: Journal of Clinical Microbiology (2001), 39(8),  
2911-2915  
CODEN: JCMIDW; ISSN: 0095-1137  
PUBLISHER: American Society for Microbiology  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB Mycobacterium bovis bacillus Calmette-Guerin (BCG) has been used as  
a live bacterial vaccine to immunize more than 2 billion people  
against tuberculosis. In an attempt to use this vaccine strain as a  
vehicle for protective antigens, the Plasmodium falciparum gene from  
strain FCC-1/HN encoding circumsporozoite protein (CSP) was  
amplified from the P. falciparum genome, sequenced, and expressed in  
M. bovis BCG under the control of an expression cassette carrying  
the promoter of heat shock protein 70 (HSP70) from Mycobacterium  
tuberculosis. The recombinant shuttle plasmid pBCG/CSP was  
introduced into mycobacteria by electroporation, and the recombinant  
mycobacteria harboring pBCG/CSP could be induced by heating to  
express CSP; the mol. mass of recombinant CSP was about 42 kDa.  
This report of expression of the almost-full-length P. falciparum  
CSP gene in BCG provides scientific evidence for the application of  
the HSP70 promoter in expressing a foreign gene in BCG and in  
development of BCG as a multivalent vectoral vaccine for  
**malaria.**

IT 407646-80-4

RL: BSU (Biological study, unclassified); PRP (Properties); BIOL  
(Biological study)

(amino acid sequence; mol. cloning and sequencing of the  
circumsporozoite protein gene from Plasmodium falciparum strain  
FCC-1/HN and expression of the gene in mycobacteria)

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L3 ANSWER 6 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 2001:26336 HCAPLUS

DOCUMENT NUMBER: 134:221126

TITLE: A totally synthetic polyoxime **malaria**

vaccine containing Plasmodium falciparum B cell  
and universal T cell epitopes elicits immune  
responses in volunteers of diverse HLA types  
Nardin, Elizabeth H.; Calvo-Calle, J. Mauricio;  
Oliveira, Giane A.; Nussenzweig, Ruth S.;  
Schneider, Martin; Tiercy, Jean-Marie; Loutan,  
Louis; Hochstrasser, Denis; Rose, Keith

CORPORATE SOURCE: Department of Medical and Molecular  
Parasitology, New York University School of  
Medicine, New York, NY, 10010, USA

SOURCE: Journal of Immunology (2001), 166(1), 481-489

Searcher : Shears 308-4994

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CODEN: JOIMA3; ISSN: 0022-1767

PUBLISHER: American Association of Immunologists  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB This open-labeled phase I study provides the first demonstration of the immunogenicity of a precisely defined synthetic polyoxime **malaria** vaccine in volunteers of diverse HLA types. The polyoxime, designated (T1BT\*)4-P3C, was constructed by chemoselective ligation, via oxime bonds, of a tetrabranch core with a peptide module contg. B cell epitopes and a universal T cell epitope of the Plasmodium falciparum circumsporozoite protein. The triepitope polyoxime **malaria** vaccine was immunogenic in the absence of any exogenous adjuvant, using instead a core modified with the lipopeptide P3C as an endogenous adjuvant. This totally synthetic vaccine formulation can be characterized by mass spectroscopy, thus enabling the reproducible prodn. of precisely defined vaccines for human use. The majority of the polyoxime-immunized volunteers (7/10) developed high levels of anti-repeat Abs that reacted with the native circumsporozoite on P. falciparum sporozoites. In addn., these seven volunteers all developed T cells specific for the universal epitope, termed T\*, which was originally defined using CD4+ T cells from protected volunteers immunized with irradiated P. falciparum sporozoites. The excellent correlation of T\*-specific cellular responses with high anti-repeat Ab titers suggests that the T\* epitope functioned as a universal Th cell epitope, as predicted by previous peptide/HLA binding assays and by immunogenicity studies in mice of diverse H-2 haplotypes. The current phase I trial suggests that polyoximes may prove useful for the development of highly immunogenic, multi-component synthetic vaccines for **malaria**, as well as for other pathogens.

IT 329019-45-6P

RL: BAC (Biological activity or effector, except adverse); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(a synthetic polyoxime **malaria** vaccine contg. P. falciparum B cell and universal T cell epitopes eliciting immune responses in diverse HLA haplotypes)

IT 151113-09-6P

RL: BAC (Biological activity or effector, except adverse); BPN (Biosynthetic preparation); BSU (Biological study, unclassified); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)

(universal T epitope; a synthetic polyoxime **malaria** vaccine contg. P. falciparum B cell and universal T cell epitopes eliciting immune responses in diverse HLA haplotypes)

REFERENCE COUNT: 38 THERE ARE 38 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L3 ANSWER 7 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:509115 HCAPLUS

DOCUMENT NUMBER: 129:148063

TITLE: Universal T-cell epitopes for anti-**malarial** vaccines

INVENTOR(S): Nardin, Elizabeth; Moreno, Alberto

PATENT ASSIGNEE(S): New York University, USA

Searcher : Shears 308-4994

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SOURCE: PCT Int. Appl., 39 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9831382	A1	19980723	WO 1998-US1527	19980121
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
AU 9859316	A1	19980807	AU 1998-59316	19980121
BR 9806971	A	20000314	BR 1998-6971	19980121
EP 1007081	A1	20000614	EP 1998-902726	19980121
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2001509813	T2	20010724	JP 1998-534771	19980121
PRIORITY APPLN. INFO.:				
			US 1997-33916P	P 19970121
			WO 1998-US1527	W 19980121
AB The present invention provides methods and compns. for eliciting protective immunity against <b>malaria</b> . In particular, the invention relates to universal T-cell epitopes that elicit T-cell responses in individuals of differing genetic backgrounds. Immunogenic compns. and vaccines comprising <b>malaria</b> -specific universal T-cell epitopes are disclosed.				
IT <b>151113-09-6</b>				
RL: PRP (Properties); THU (Therapeutic use); BIOL (Biological study); USES (Uses)				
(universal T-cell epitopes for anti-malarial vaccines)				
REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT				

L3 ANSWER 8 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1998:414678 HCAPLUS  
DOCUMENT NUMBER: 129:64049  
TITLE: Targeted nucleic acid delivery into liver cells using circumsporozoite protein complexed with polylysine as nucleic acid carrier  
INVENTOR(S): Kuo, M. Tien; Ding, Zhi Ming  
PATENT ASSIGNEE(S): Board of Regents , University of Texas System, USA  
SOURCE: U.S., 34 pp.  
CODEN: USXXAM  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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Searcher : Shears 308-4994

AB	US 5766899	A 19980616	US 1995-395602	19950227
	<p>Disclosed is a receptor-mediated complex that selectively delivers nucleic acid into hepatocytes. Circumsporozoite (CS) protein is the targeting ligand that recognizes a receptor expressed on the liver cell surface. The CS ligand is complexed with a polylysine component that can bind nucleic acid. The level of gene expression is greatly enhanced when the complex is cotransfected with adenovirus. Using the present invention, a reporter gene was successfully transferred into a no. of different cell lines that express high levels of receptor. The ability to introduce nucleic acid into specific mammalian cells is an important therapy for numerous diseases such as cancer, <b>malaria</b> and hepatitis.</p>			

IT 208947-67-5

RL: BUU (Biological use, unclassified); THU (Therapeutic use); BIOL (Biological study); USES (Uses)

(CS antigen fragment; targeted nucleic acid delivery into liver cells using circumsporozoite protein complexed with polylysine as nucleic acid carrier)

REFERENCE COUNT: 29 THERE ARE 29 CITED REFERENCES AVAILABLE  
FOR THIS RECORD. ALL CITATIONS AVAILABLE  
IN THE RE FORMAT

L3 ANSWER 9 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1998:246174 HCAPLUS

DOCUMENT NUMBER: 129:66591

TITLE: Plasmodium falciparum polyoximes: highly immunogenic synthetic vaccines constructed by chemoselective ligation of repeat B-cell epitopes and a universal T-cell epitope of CS protein

AUTHOR(S): Nardin, E. H.; Calvo-Calle, J. M.; Oliveira, G. A.; Clavijo, P.; Nussenzweig, R.; Simon, R.; Zeng, W.; Rose, K.

CORPORATE SOURCE: Department of Medical and Molecular  
Parasitology, New York University School of  
Medicine, New York, NY, 10010, USA

SOURCE: Vaccine (1998), 16(6), 590-600

CODEN: VACCDE; ISSN: 0264-410X

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Effective immunoprophylaxis directed against the pre-erythrocytic stages of the **malaria** parasite requires a vaccine that can elicit humoral and cell mediated immunity in individuals of diverse genetic background. In order for a synthetic peptide **malaria** vaccine to meet these requirements, problems assocd. with genetic restriction, peptide chem., adjuvant formulation and physiochem. characterization of the final synthetic vaccine product must first be overcome. To address these issues, five polyoxime vaccine candidates have been constructed by ligating purified peptide epitopes of the P. falciparum CS protein to a branched template via oxime bonds. All five constructs, including two based on templates contg. the synthetic adjuvant tripalmitoyl-S-glyceryl cysteine (Pam3Cys), were of sufficient purity for characterization by mass spectrometry. The immunogenicity of the **malaria** polyoximes in different murine strains was compared to that of multiple antigen peptide (MAP) constructs synthesized by std.

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step-wise synthesis. A tri-epitope polyoxime-Pam3Cys construct, based on the repeats and a universal T-cell epitope that contains both helper and CTL epitopes of the CS protein, was shown to be a precisely-defined synthetic **malaria** vaccine candidate that was highly immunogenic in murine strains of diverse H-2 haplotypes.

IT 208946-19-4P 208946-20-7P

RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); PRP (Properties); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)  
(Plasmodium falciparum synthetic vaccines using B-cell and T-cell epitope polyoximes and the antibody response)

IT 151113-09-6P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)  
(Plasmodium falciparum synthetic vaccines using B-cell and T-cell epitope polyoximes and the antibody response)

L3 ANSWER 10 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1997:476523 HCAPLUS

DOCUMENT NUMBER: 127:204127

TITLE: Binding of **malaria** T cell epitopes to DR and DQ molecules in vitro correlates with immunogenicity in vivo. Identification of a universal T cell epitope in the Plasmodium falciparum circumsporozoite protein

AUTHOR(S): Calvo-Calle, J. Mauricio; Hammer, Juergen; Sinigaglia, Francesco; Clavijo, Pedro; Moya-Castro, Z. Rosa; Nardin, Elizabeth H.

CORPORATE SOURCE: Dep. Medical and Molecular Parasitology, School Medicine, New York Univ., New York, NY, 10016, USA

SOURCE: Journal of Immunology (1997), 159(3), 1362-1373  
CODEN: JOIMA3; ISSN: 0022-1767

PUBLISHER: American Association of Immunologists

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The efficacy of a **malaria** peptide vaccine would be enhanced by the inclusion of a parasite-derived universal T cell epitope to ensure that all vaccines develop parasite-specific cellular and humoral immunity. Two circumsporozoite (CS) protein T cell epitopes, previously identified by CD4+ T cell clones derived from Plasmodium falciparum sporozoite-immunized volunteers, were studied to det. their HLA class II binding potential. One epitope, located in amino acid (aa) 326-345 of the P. falciparum (NF54 strain) CS protein, was "universal" in that it could bind to multiple DR and DQ mols. in vitro. In contrast, the second epitope, T1, which is located in the CS repeat region, was recognized by T cells in the context of DQ6 (DQB1\*0603) and did not bind with high affinity to any of the class II mols. tested in the peptide binding assays. The in vitro patterns of peptide/HLA interactions correlated with immunogenicity in vivo. A multiple antigen peptide (MAP) contg. the aa 326-345 epitope elicited responses in eight inbred strains (H-2a,b,d,k,p,q,r,s), while the T1 MAP was recognized by only a single haplotype, H-2b. The combination of the universal aa 326-345 T cell epitope and the T1 repeat in a di-epitope MAP overcame the genetic restriction to the P. falciparum CS repeat region and elicited antisporeozoite Ab responses in all of the MAP-immunized mice. Synthetic peptide **malaria** vaccines

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contg. the aa 326-345 universal T cell epitope would be expected to elicit parasite-specific immune responses in both sporozoite-primed and naive individuals of diverse genetic backgrounds.

IT 151113-09-6P

RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation); PROC (Process)

(binding of **malaria** T cell epitopes to human DR and DQ mols. and identification of a universal T cell epitope in the Plasmodium falciparum circumsporozoite protein)

L3 ANSWER 11 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1993:647465 HCAPLUS

DOCUMENT NUMBER: 119:247465

TITLE: CD4+ T cell clones obtained from Plasmodium falciparum sporozoite-immunized volunteers recognize polymorphic sequences of the circumsporozoite protein

AUTHOR(S): Moreno, Alberto; Clavijo, Pedro; Edelman, Robert; Davis, Jonathan; Sztein, Marcelo; Sinigaglia, Francesco; Nardin, Elizabeth

CORPORATE SOURCE: Sch. Med., New York Univ., New York, NY, 10010, USA

SOURCE: Journal of Immunology (1993), 151(1), 489-99  
CODEN: JOIMA3; ISSN: 0022-1767

DOCUMENT TYPE: Journal

LANGUAGE: English

AB CD4+ T cell clones were derived from three volunteers who were protected against **malaria** after immunization with Plasmodium falciparum sporozoites. T cells specific for an epitope, Pf Th/Tc, contained in amino acids 326 to 345 of the circumsporozoite (CS) protein of P. falciparum (NF54) were derived from all three volunteers. DR1-, -4-, -7-, and -9-restricted T cell clones were found to recognize overlapping, but distinct, epitopes within a 20-mer peptide representing the amino acid 326 to 345 sequence. The Pf Th/Tc epitope contains part of the highly conserved region II as well as part of a polymorphic domain of the P. falciparum CS protein. All of the overlapping epitopes within peptide 326-345 contained at least three amino acids of the amino terminus of the conserved region II, in addn. to a variable no. of amino acids in the polymorphic region. The DR4-, -7-, and -9-restricted but not the DR1-restricted T cell clones recognized variant peptides representing this polymorphic region of the CS protein of P. falciparum isolates from Africa, Asia, and South America.

IT 151113-09-6

RL: BIOL (Biological study)

(HLA-DR-restricted T cell clone recognition of, of circumsporozoite protein of Plasmodium falciparum in humans)

L3 ANSWER 12 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1993:493517 HCAPLUS

DOCUMENT NUMBER: 119:93517

TITLE: Hybrid protein with Plasmodium CS protein sequence and hepatitis B surface antigen sequence, and use for vaccine against **malaria**

09/931325

INVENTOR(S): De Wilde, Michel; Cohen, Joseph  
PATENT ASSIGNEE(S): Smithkline Beecham Biologicals S.A., Belg.  
SOURCE: PCT Int. Appl., 59 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9310152	A1	19930527	WO 1992-EP2591	19921111
W: AU, CA, JP, KR, US				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE				
AU 9229278	A1	19930615	AU 1992-29278	19921111
EP 614465	A1	19940914	EP 1992-923486	19921111
EP 614465	B1	19990317		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, SE				
JP 07501213	T2	19950209	JP 1992-508957	19921111
AT 177755	E	19990415	AT 1992-923486	19921111
ES 2129461	T3	19990616	ES 1992-923486	19921111
ZA 9208770	A	19940513	ZA 1992-8770	19921113
US 5928902	A	19990727	US 1996-760797	19961204
AU 9714717	A1	19970612	AU 1997-14717	19970214
AU 712409	B2	19991104		
US 6169171	B1	20010102	US 1997-932929	19970918

PRIORITY APPLN. INFO.:

GB 1991-24390	A	19911116
US 1992-842694	A	19920227
WO 1992-EP2591	A	19921111
US 1995-442612	B1	19950517
US 1996-663371	B1	19960613

AB Hybrid proteins (RTS and RTS\*) are disclosed which include a portion of the CS protein of *P. falciparum* and of the surface antigen of hepatitis B virus (HBsAg). The RTS hybrid consists of (1) a Met residue derived from the *Saccharomyces cerevisiae* TDH3 gene sequence; (2) a Met-Ala-Pro sequence; (3) a *P. falciparum* CS protein fragment; (4) an Arg residue; (5) a carboxyl-terminal tetrapeptide sequence (Pro-Val-Thr-Asn) of hepatitis B pre-S2 protein; and (6) hepatitis B S-protein sequence. Also disclosed is a mixed multimeric lipoprotein particle contg. the hybrid protein and HBsAg. The hybrid proteins and particles are useful for anti-**malaria** vaccines. Expression cassette construction is described, and amino acid sequences (and corresponding nucleotide sequences) are included. (RTS,S) lipoprotein particles induced, both in mice and monkeys, a high antibody response directed against the repeat and nonrepeat CS epitopes and against the S protein of the HBsAg carrier. The antibodies elicited in the 2 animal species effectively prevented invasion of cultured human hepatoma cells by *P. falciparum* sporozoites.

IT 149121-48-2

RL: PRP (Properties)  
(amino acid sequence of, for vaccine against **malaria**)

L3 ANSWER 13 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1992:649667 HCAPLUS

DOCUMENT NUMBER: 117:249667

TITLE: In vitro immune recognition of synthetic

Searcher : Shears 308-4994

09/931325

peptides from the Plasmodium falciparum CS protein by individuals naturally exposed to different sporozoite challenge

AUTHOR(S): Esposito, Fulvio; Lombardi, Stefania; Modiano, David; Habluetzel, Annette; DelNero, Luca; Lamizana, Lansina; Pietra, Virginio; Rotigliano, Gianfranco; Corradin, Giampietro; et al.

CORPORATE SOURCE: Dip. Biol. Mol. Cell. Anim., Univ. Camerino, Camerino, 62032, Italy

SOURCE: Immunology Letters (1992), 33(2), 187-99  
CODEN: IMLED6; ISSN: 0165-2478

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The impact of duration and intensity of sporozoite challenge on the in vitro cell immune response to synthetic peptides of the circumsporozoite (CS) protein of P. falciparum was investigated in residents of a **malaria** endemic area in Burkina Faso (West Africa). Lymphocyte proliferation and interferon-.gamma. (IFN-.gamma.) prodn. were used to assess immune recognition of synthetic peptides corresponding to the polymorphic Th2R and Th3R regions, to the conserved CS.T3 sequence, and to NANP and degenerate NVDP repeats. Immune responses were measured in adults and children from a village where they received >100 sporozoite inoculations/yr and in adults living in a town, exposed to a 10-100 times lower challenge. A lifetime intense exposure apparently increased the ability to proliferate in response to most peptides in the rural adults, who all produced antibodies to NANP repeats. Surprisingly, cell cultures from these subjects seldom contained appreciable levels of IFN-.gamma.. In the urban adults, possibly due to the moderate challenge they are exposed to, differences in the proliferative potentials of the peptides were detected. The highest stimulation indexes were obtained with the genetically unrestricted CS.T3 peptide. Remarkably, proliferative responses to Th2R and Th3R correlated with the humoral response to the CS protein, indicating a T helper significance of the epitopes. The differing proliferative potential of the polymorphic epitopes in the urban adults suggests that polymorphism might delay the development of immune responsiveness under conditions of sporadic transmission. The children from the highly malarious village displayed the lowest proliferative scores, accompanied by a high prevalence of antibodies to NANP repeats. The hypothesis is thus proposed that a pure B cell reactivity to NANP repeats could ontogenetically precede the mounting of a conventional T-B cooperative immune response.

IT **116111-16-1**

RL: BIOL (Biological study)  
(CS protein of Plasmodium falciparum immune recognition in humans in sporozoite challenge in relation to)

L3 ANSWER 14 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1992:233694 HCAPLUS  
DOCUMENT NUMBER: 116:233694  
TITLE: Phagocytosis of liposomes by macrophages:  
intracellular fate of liposomal **malaria**  
antigen

AUTHOR(S): Verma, Jitendra N.; Wassef, Nabila M.; Wirtz, Robert A.; Atkinson, Carter T.; Aikawa, Masamichi; Loomis, Lawrence D.; Alving, Carl R.

CORPORATE SOURCE: Dep. Membr. Biochem., Walter Reed Army Inst.

Searcher : Shears 308-4994

09/931325

SOURCE: Res., Washington, DC, 20307-5100, USA  
Biochimica et Biophysica Acta (1991), 1066(2),  
229-38  
CODEN: BBACAQ; ISSN: 0006-3002

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Liposomes contg. a synthetic recombinant protein were phagocytosed by macrophages, and the internalized protein was recycled to the cell surfaces where it was detected by ELISA. The transit time of the liposome-encapsulated protein from initial phagocytosis of liposomes to appearance of protein on the surfaces of macrophages was detd. by pulse-chase expts. The macrophages were pulsed with liposomes contg. protein and chased with empty liposomes, and vice versa. The amt. and rate of protein antigen expression at the cell surfaces depended on the quantity of encapsulated protein ingested by the macrophages. Although liposomes were rapidly taken up by macrophages, the liposome-encapsulated protein was antigenically expressed for a prolonged period (at least 24 h) on the cell surface. Liposomes were visualized inside vacuoles in the macrophages by immunogold electron microscopy. The liposomes accumulated along the peripheries of the vacuoles and many of them apparently remained intact for a long time (>6 h). However, nonliposomal free protein was also detected in the cytoplasm surrounding these vacuoles, and it was concluded that the free protein in the cytoplasm was probably en route to the macrophage surface. Exposure of the cells to ammonium chloride did not inhibit the appearance of liposomal antigenic epitopes on the cell surface, and this suggests that expression of the liposomal antigenic epitopes at the surface was not a pH-sensitive phenomenon. There was no effect on a liposomal adjuvant, lipid A, on the rate or extent of surface expression of the liposomal protein.

IT 140877-00-5, Antigen R 32NS181 (influenza virus-Plasmodium falciparum 212-amino acid synthetic)

RL: BIOL (Biological study)

(antigen R32NS1, liposomes contg., phagocytosis of, by macrophage, intracellular antigen expression after)

L3 ANSWER 15 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1991:490072 HCAPLUS

DOCUMENT NUMBER: 115:90072

TITLE: Toward the elucidation of the mechanism of attachment and entry of **malaria** sporozoites into cells: synthetic polypeptides from the circumsporozoite protein of Plasmodium falciparum bind calcium and interact with model phospholipid membranes

AUTHOR(S): Verdini, Antonio S.; Chiappinelli, Lorella; Zanobi, Antonio

CORPORATE SOURCE: Italfarmaco Res. Cent., Cinisello Balsamo, 20092, Italy

SOURCE: Biopolymers (1991), 31(6), 587-94  
CODEN: BIPMAA; ISSN: 0006-3525

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The combined use of CD, Fourier transform IR (FTIR), and attenuated total reflectance FTIR spectroscopies revealed that synthetic polypeptide models of the P. falciparum circumsporozoite (CS) protein repeat domain bind calcium ions in helicogenic environments.

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Ca<sup>2+</sup>-(NANP)<sub>n</sub> complexes (n .gtoreq. 20) interact vectorially with model phospholipid membranes, orienting their polypeptide axes preferentially along those of the lipid acyl chains. It is proposed that the P. falciparum CS protein central region, rather than acting as a mol. lure helping the parasite to evade host immune control, plays, as a specific Ca<sup>2+</sup> macroligand, a crit. functional role during attachment, invasion, and development of the **malaria** parasite in the hepatic cell.

IT 116111-16-1

RL: BIOL (Biological study)  
(calcium binding and phospholipid membrane interactions of, structure and function of circumsporozoite protein of Plasmodium falciparum in relation to)

L3 ANSWER 16 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1990:152771 HCAPLUS

DOCUMENT NUMBER: 112:152771

TITLE: The circumsporozoite protein gene from NF54, a Plasmodium falciparum isolate used in **malaria** vaccine trials

AUTHOR(S): Caspers, Patrick; Gentz, Reiner; Matile, Hugues; Pink, J. Richard; Sinigaglia, Francesco

CORPORATE SOURCE: Cent. Res. Units, F. Hoffmann-La Roche and Co., Ltd., Basel, CH-4002, Switz.

SOURCE: Molecular and Biochemical Parasitology (1989), 35(2), 185-9

CODEN: MBIPDP; ISSN: 0166-6851

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The circumsporozoite protein gene of P. falciparum isolate NF54 was sequenced. The gene encoded a protein of 405 amino acids. The central region of the protein contained 40 repeats of the Asn-Ala-Asn-Pro sequence. The cloned gene for the circumsporozoite protein may be used in vaccine prepn.

IT 125854-16-2, Antigen CS (Plasmodium falciparum strain NF54 reduced)

RL: PRP (Properties)  
(amino acid sequence of)

L3 ANSWER 17 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:484065 HCAPLUS

DOCUMENT NUMBER: 111:84065

TITLE: Conjugate **malaria** vaccine

INVENTOR(S): Sadoff, Jerald C.; Cryz, Stanley J., Jr.

PATENT ASSIGNEE(S): Swiss Serum and Vaccine Institute Berne, Switz.

SOURCE: Eur. Pat. Appl., 24 pp.

CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 289110	A2	19881102	EP 1988-300813	19880201
EP 289110	A3	19900124		
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
CA 1329124	A1	19940503	CA 1988-557889	19880201

Searcher : Shears 308-4994

AB Immunogenic conjugates are prep'd. by covalently linking a carrier protein to a peptide forming an antigenic determinant of circumsporozoite protein via at least one spacer mol. The conjugates are vaccines against **malaria**. Gram neg. outer membrane proteins are treated with an anhydride to form a water-sol. nontoxic carrier protein for use in a conjugate vaccine. Choleragenoid was coupled to H-(Asn-Pro-Asn-Ala)<sub>3</sub>-OH using both succinic anhydride and adipic acid dihydrazide to give an antimalaria conjugate. A response on an ELISA test was seen for 2/3 human volunteers injected i.m. Reactions following vaccination were mild and transient, and std. physiol. tests showed no change following vaccination, indicating a lack of toxicity.

L3 ANSWER 18 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:34817 HCAPLUS  
DOCUMENT NUMBER: 110:34817  
TITLE: Expression in yeast of DNA encoding hepatitis B  
surface antigen-heterologous antigen fusion  
proteins for use as vaccines  
INVENTOR(S): Cabezon, Teresa; De Wilde, Michel; Harford,  
Nigel  
PATENT ASSIGNEE(S): Smith Kline-Rit S. A., Belg.  
SOURCE: Eur. Pat. Appl., 101 pp.  
CODEN: EPXXDW  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PRIORITY APPLN. INFO.:

Searcher :

308-4994

09/931325

AB Plasmids contg. DNA encoding part or all of the pre-S region of hepatitis B surface antigen (HBsAg) fused to DNA encoding an heterologous antigen (e.g. a Plasmodium circumsporozoite (CS) protein epitope, an HIV antigenic peptide) are constructed and expressed in yeast. Immunogenic particles are produced which can be used as vaccines. Plasmid pRIT12574, encoding a fusion protein of pre-S2 HBsAg and tetrapeptide repeats of the Plasmodium CS protein, was constructed. Yeast transformed with this plasmid produced 22 nm-like particles which were purified in the customary manner from the cell ext. Rabbits immunized with these particles developed antibodies to both CS and HBsAg. Sera from these rabbits reacted strongly in a CS pptn. reaction and inhibited sporozoite invasion on hepatoma cells in vitro.

IT 92480-13-2, Antigen CS (Plasmodium falciparum clone 7G8 surface precursor reduced)  
RL: PRP (Properties)  
(amino acid sequence of)

L3 ANSWER 19 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1989:5809 HCAPLUS

DOCUMENT NUMBER: 110:5809

TITLE: Reversed-phase liquid chromatography and sodium dodecyl sulfate polyacrylamide gel electrophoresis characteristics of a recombinant DNA derived **malaria** antigen

AUTHOR(S): Benedek, K.; Hughes, B.; Seaman, M. B.; Swadesh, J. K.

CORPORATE SOURCE: Smith Kline and French Lab., King of Prussia, PA, 19406-0939, USA

SOURCE: Journal of Chromatography (1988), 444, 191-202  
CODEN: JOCRAM; ISSN: 0021-9673

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Results are presented from anal. of a sample of SK&F 105154 (R32NS181), a **malaria** vaccine candidate produced in Escherichia coli, and some anal. issues of general relevance to the characterization of such products derived from recombinant DNA technol. are discussed. Anomalous migration and staining behavior were obsd. in SDS-PAGE. Reversed-phase liq. chromatog. (RPLC) appeared to resolve 4 minor components from the principal band, but the minor peaks were found to consist of numerous components resolvable by SDS-PAGE. Western blotting visualized certain components that were not adequately stained by either Coomassie or Ag stain. None of the techniques that were employed were individually adequate to characterize the sample, but, taken together, were adequate to characterize the sample and to identify one principal degrdn. pathway. Degrdn. within the NS181 region decreases the RPLC retention time, while degrdn. within the R32 segment increases the retention time.

IT 117924-89-7

RL: BIOL (Biological study)  
(as **malaria** vaccine candidate, characterization of, methods for)

L3 ANSWER 20 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1988:529704 HCAPLUS

DOCUMENT NUMBER: 109:129704

TITLE: Preparation of immunologically active peptides

09/931325

for preparation of **malaria** vaccines  
and for detection of antibodies  
INVENTOR(S): Bernardi, Adriano; Bonelli, Fabio; Pessi,  
Antonello; Verdini, Antonio Silvio  
PATENT ASSIGNEE(S): Eniricerche S.p.A., Italy  
SOURCE: Ger. Offen., 7 pp.  
CODEN: GWXXBX  
DOCUMENT TYPE: Patent  
LANGUAGE: German  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3741183	A1	19880609	DE 1987-3741183	19871204
DE 3741183	C2	19910606		
ZA 8708903	A	19880727	ZA 1987-8903	19871126
CH 672491	A	19891130	CH 1987-4640	19871127
SE 8704765	A	19880605	SE 1987-4765	19871130
GB 2199038	A1	19880629	GB 1987-28000	19871130
GB 2199038	B2	19910320		
BE 1001692	A5	19900213	BE 1987-1373	19871202
FR 2607703	A1	19880610	FR 1987-16809	19871203
FR 2607703	B1	19930924		
NL 8702921	A	19880701	NL 1987-2921	19871203
US 4843146	A	19890627	US 1987-128082	19871203
CA 1304888	A1	19920707	CA 1987-553481	19871203
AT 8703190	A	19940415	AT 1987-3190	19871203
ES 2005753	A6	19890316	ES 1987-3801	19871204

PRIORITY APPLN. INFO.: IT 1986-22560 19861204  
AB H-(Asn-Val-Asp-Pro-Asn-Ala-Asn-Pro)3-(Asn-Ala-Asn-Pro)n-Asn-Ala-OH  
(I; n .gtoreq. 3) were prepd. for prepn. of **malaria**  
vaccines and for use in diagnostic kits for detecting antsporozoite  
antibodies. I (n = 3) (II) was prepd. on pepsyn A resin contg.  
p-hydroxymethylphenoxyacetate "hooks" using Fmoc-protected amino  
acid anhydrides.  
IT **116111-16-1P**  
RL: SPN (Synthetic preparation); PREP (Preparation)  
(prepn. of, for prepn. of **malaria** vaccine and for  
detection of **malaria** antibodies)  
IT **116111-20-7D**, hydroxymethylphenoxyacetate resin-bound  
RL: RCT (Reactant); RACT (Reactant or reagent)  
(reaction of, in prepn. of **malaria** intermediate)

L3 ANSWER 21 OF 22 HCAPLUS COPYRIGHT 2002 ACS  
ACCESSION NUMBER: 1985:198973 HCAPLUS  
DOCUMENT NUMBER: 102:198973  
TITLE: Immunologically active peptides capable of  
inducing immunization against **malaria**  
and genes encoding for them  
PATENT ASSIGNEE(S): United States Dept. of the Army, USA  
SOURCE: U. S. Pat. Appl., 55 pp. Avail. NTIS Order No.  
PAT-APPL-6-624 564  
CODEN: XAXXAV  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

Searcher : Shears 308-4994

09/931325

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 624564	A0	19850104	US 1984-624564	19840626
US 4707357	A	19871117		
ZA 8504697	A	19860226	ZA 1985-4697	19850621
EP 166410	A2	19860102	EP 1985-107794	19850624
EP 166410	A3	19871125		
EP 166410	B1	19921125		
R: BE, CH, DE, FR, GB, IT, LI, NL, SE				
AU 8543990	A1	19860102	AU 1985-43990	19850624
AU 596561	B2	19900510		
CA 1340431	A1	19990316	CA 1985-485166	19850625
DK 8502891	A	19851227	DK 1985-2891	19850626
DK 166284	B	19930329		
DK 166284	C	19930823		
JP 61149093	A2	19860707	JP 1985-140108	19850626
JP 2561238	B2	19961204		
DK 9101919	A	19911126	DK 1991-1919	19911126
DK 166155	B	19930315		
DK 166155	C	19930809		
JP 06225768	A2	19940816	JP 1993-268294	19930930
JP 07110876	B4	19951129		
JP 07265086	A2	19951017	JP 1995-40679	19950228
JP 2537027	B2	19960925		
JP 07265087	A2	19951017	JP 1995-40692	19950228
JP 2537028	B2	19960925		

PRIORITY APPLN. INFO.:

US 1984-624564 19840626

AB Circumsporozoite proteins or fractions thereof capable of eliciting an immunol. response in humans against Plasmodium falciparum (malaria) sporozoites are synthesized by peptide coupling reactions on a solid support or by mol. cloning. In the latter case, DNA sequences encoding these immunol. active peptides are cloned on phage .lambda.mPfl and used to lysogenize Escherichia coli from which the peptides are harvested. Thus, cloned DNA sequences from a P. falciparum gene library were obtained that encode a peptide including the major monoclonal antibody binding sequences (1) 2 consecutive Asn-X-Y-Pro repeats, where x is alanine or valine and Y is asparagine or aspartic acid, (2) Thr-Glu-Trp-Z-Pro-Cys-Ser-Val-Thr-Cys-Gly-Asn-Gly, where Z is serine or threonine, or (3) Lys-Pro-S-T-S-Lys-Leu-Lys-Gln-Pro-U-V-Gly-W-Pro, where S is lysine or asparagine, T is histidine or glutamic acid, U is glycine or asparagine, V is aspartic acid or glutamic acid, and W is asparagine or glutamine. The immunol. active peptides formed by E. coli transformed with these DNA sequences when purified and administered i.m. to i.v. at 0.01-100 .mu.g/kg body wt. provide protection against P. falciparum sporozoite infection.

IT 92480-13-2 92480-14-3

RL: PRP (Properties)  
(amino acid sequence of)

IT 96281-87-7P

RL: PREP (Preparation)  
(prepn. of, for antimalarial vaccine prodn.)

L3 ANSWER 22 OF 22 HCAPLUS COPYRIGHT 2002 ACS

ACCESSION NUMBER: 1984:564640 HCAPLUS

DOCUMENT NUMBER: 101:164640

TITLE: Structure of the gene encoding the

Searcher : Shears 308-4994

09/931325

immunodominant surface antigen on the sporozoite  
of the human **malaria** parasite  
Plasmodium falciparum  
AUTHOR(S): Dame, John B.; Williams, Jackie L.; McCutchan,  
Thomas F.; Weber, James L.; Wirtz, Robert A.;  
Hockmeyer, Wayne T.; Maloy, W. Lee; Haynes, J.  
David; Schneider, Imogene; et al.  
CORPORATE SOURCE: Lab. Parasit. Dis., Natl. Inst. Allergy Infect.  
Dis., Bethesda, MD, 20205, USA  
SOURCE: Science (Washington, DC, United States) (1984),  
225(4662), 593-9  
CODEN: SCIEAS; ISSN: 0036-8075  
DOCUMENT TYPE: Journal  
LANGUAGE: English

AB The gene for the circumsporozoite (CS) protein of P. falciparum was  
cloned, and its nucleotide sequence was detd. The gene encodes a  
protein of 412 amino acids, as deduced from the nucleotide sequence.  
The protein contains 41 tandem repeats of a tetrapeptide, 37 of  
which are Asn-Ala-Asn-Pro [92463-34-8] and 4 of which are  
Asn-Val-Asp-Pro [92463-35-9]. Monoclonal antibodies against the CS  
protein of P. falciparum were inhibited from binding to the protein  
by synthetic peptides of the repeat sequence. The CS protein of P.  
falciparum and the CS protein of a simian **malaria**  
parasite, P. knowlesi, have 2 regions of homol., 1 of which is  
present on either side of the repeat. One region contains 12 of 13  
identical amino acids. Within the nucleotide sequence of this  
region, 25 of 27 nucleotides are conserved. The conservation of  
these regions in parasites widely sepd. in evolution suggests that  
they may have a function, such as binding to liver cells, and may  
represent an invariant target for immunity.  
IT 92480-13-2 92480-14-3  
RL: PRP (Properties)  
(amino acid sequence of)

E1 THROUGH E29 ASSIGNED

FILE 'REGISTRY' ENTERED AT 15:23:28 ON 06 DEC 2002  
L4 29 SEA FILE=REGISTRY ABB=ON PLU=ON (151113-09-6/BI OR  
116111-16-1/BI OR 401460-27-3/BI OR 92480-13-2/BI OR  
401460-26-2/BI OR 401460-29-5/BI OR 401460-48-8/BI OR  
401460-49-9/BI OR 401460-60-4/BI OR 401461-03-8/BI OR  
92480-14-3/BI OR 116111-20-7/BI OR 117924-88-6/BI OR  
117924-89-7/BI OR 122156-87-0/BI OR 125854-16-2/BI OR  
140877-00-5/BI OR 149121-48-2/BI OR 208946-19-4/BI OR  
208946-20-7/BI OR 208947-67-5/BI OR 329019-45-6/BI OR  
401460-45-5/BI OR 401552-42-9/BI OR 401556-50-1/BI OR  
401556-53-4/BI OR 407646-80-4/BI OR 467522-97-0/BI OR  
96281-87-7/BI)

=> s 14 and 11

L5 29 L4 AND L1

L5 ANSWER 1 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 467522-97-0 REGISTRY  
CN Protein (Plasmodium falciparum strain 3D7 clone MAL3P2 gene  
PFC0210c) (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN GenBank AL034558-derived protein GI 4493889

Searcher : Shears 308-4994

09/931325

CI MAN  
SQL 396

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SEQ      1 MRKLAILSVS SFLFVEALFQ EYQCYGSSSN TRVLNELNYD NAGTNLYNEL
      51 EMNYYGKQEN WYSLKKNSRS LGENDDGNE DNEKLRKPKH KKLKQPADGN
     101 PDPNANPNVD PNANPNVDPN ANPNVDPNAN PNANPNANPN ANPNANPNAN
           = =====
     151 PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNVDPN
           =====
     201 ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN
           =====
     251 PNANPNANPN ANPNANPNAN PNKNNQGNGQ GHNMPPNDPNR NVDENANANS
     301 AVKNNNNNEEP SDKHIKEYLN KIQNSLSTEW SPCSVTCGNG IQVRIKPGSA
           =====
     351 NKPKDELDTA NDIEKKICKM EKCSSVFNVV NSSIGLIMVL SFLFLN
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HITS AT: 120-139, 192-211, 317-336

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

REFERENCE 1: 137:289735

L5 ANSWER 2 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **407646-80-4** REGISTRY  
CN Circumsporozoite protein (Plasmodium falciparum strain FCC-1/HN gene  
csp fragment) (9CI) (CA INDEX NAME)

OTHER NAMES:

CN GenBank AF315469-derived protein GI 11527999

CI MAN

SQL 383

```
SEQ      1 FQEYQCYGSS SNTRVLNELN YDNAGTNLYN ELEMNYYGKQ ENWYSLKKNS
      51 RSLGENDDGN NNNGDNGREG KDEDKRDGNN EDNEKLRKPK HKKLKQPGDG
     101 NPDPNANPNV DPNANPNVDP NANPNVDPNA NPNANPNANP NANPNANPNA
           =====
     151 NPNANPNANP NANPNANPNA NPNANPNANP NVDPNANPNA NPNANPNANP
           =====
     201 NANPNANPNA NPNANPNANP NANPNANPNA NPNANPNANP NANPNANPNA
     251 NPNANPNANP NANPNANPNA NPNANPNANP NANPNANPNA NPNKNNQGNG
     301 QGHNMPPNDPN RNVDENANAN NAVKNNNNNEE PSDKHIEQYL KKIQYSLSTE
     351 WSPCSVTCGN GIQVRIKPGS ADKPKDELDTA END
```

HITS AT: 121-140, 177-196

REFERENCE 1: 136:289638

L5 ANSWER 3 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **401556-53-4** REGISTRY  
CN 130: PN: WO0214478 SEQID: 267 unclaimed protein (9CI) (CA INDEX  
NAME)

CI MAN

SQL 191

```
SEQ      1 MDIDPYKEFG ATVELLSFLP SDFFPSVRDL LDTASALYRE ALESPEHCSP
      51 HHTALRQAIL CWGELMTLAT WVGVNLEDGI NANPNANPNA NPNANPELPA
     101 SRDLVVSIVN TNMGLKFRQL LWFHISCLTF GRETVIEWLV SFGVWIRTPP
     151 AYRPPNAPIL STLPETTVVG IEYLNKIQNS LSTEWSPCSV T
           =====
```

HITS AT: 171-191

09/931325

REFERENCE 1: 136:215388

L5 ANSWER 4 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **401556-50-1** REGISTRY  
CN 122: PN: WO0214478 SEQID: 263 unclaimed DNA (9CI) (CA INDEX NAME)  
CI MAN  
SQL 171

SEQ 1 MDIDPYKEFG ATVELLSFLP SDFFPSVRDL LDTASALYRE ALESPEHCSP  
51 HHTALRQAIL CWGELMTLAT WVGVNLEDPA SRDLVVSIVN TNMGLKFRQL  
101 LWFHISCLTF GRETVIEYLV SFGVWIRTPP AYRPPNAPIL STLPETTVVG  
151 IEYLNKIQNS LSTEWSPCSV T  
=====

HITS AT: 151-171

REFERENCE 1: 136:215388

L5 ANSWER 5 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **401552-42-9** REGISTRY  
CN Antigen CS (Plasmodium falciparum clone V12.pf3.1) (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 270: PN: WO0214478 SEQID: 269 claimed protein  
CI MAN  
SQL 195

SEQ 1 MDIDPYKEFG ATVELLSFLP SDFFPSVRDL LDTASALYRE ALESPEHCSP  
51 HHTALRQAIL CWGELMTLAT WVGVNLEDGI NANPNVDPNA NPNANPNANP  
=====

101 ELPASRDLVV SYVNTNMGLK FRQLLWFHIS CLTFGRETVI EYLVSFVWVI  
151 RTPPAYRPPN APILSTLPET TVVGIEYLNK IQNSLSTEW SPCSVT  
=====

HITS AT: 81-100, 175-195

REFERENCE 1: 136:215388

L5 ANSWER 6 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **401461-03-8** REGISTRY  
CN L-Threonine, L-threonyl-L-threonyl-L-valyl-L-valylglycyl-L-isoleucyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyL-L-lysyl-L-isoleucyl-L-glutaminyL-L-asparaginyL-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteinyl-L-seryl-L-valyl- (9CI) (CA INDEX NAME)  
OTHER NAMES:  
CN 183: PN: WO0213765 SEQID: 166 unclaimed sequence  
CN 284: PN: WO0214478 SEQID: 283 claimed sequence  
SQL 26

SEQ 1 TTVVGIEYLN KIQNSLSTEW SPCSVT  
=====

HITS AT: 6-26

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

L5 ANSWER 7 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN **401460-60-4** REGISTRY

09/931325

CN L-Threonine, L-isoleucyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutaminyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteinyl-L-seryl-L-valyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 121: PN: WO0214478 SEQID: 120 claimed sequence

CN 95: PN: WO0213765 SEQID: 79 unclaimed sequence

SQL 21

SEQ 1 IEYLNKIQNS LSTEWSPCSV T  
=====

HITS AT: 1-21

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

L5 ANSWER 8 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **401460-49-9** REGISTRY

CN L-Leucine, L-isoleucyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-.alpha.-glutamyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 83: PN: WO0213765 SEQID: 43 unclaimed sequence

CN 85: PN: WO0214478 SEQID: 84 claimed sequence

SQL 23

SEQ 1 INANPNVDPN ANPNANPNAN PEL  
=====

HITS AT: 2-21

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

L5 ANSWER 9 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **401460-48-8** REGISTRY

CN L-Leucine, L-isoleucyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-.alpha.-glutamyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 82: PN: WO0213765 SEQID: 40 unclaimed sequence

CN 82: PN: WO0214478 SEQID: 81 claimed sequence

SQL 31

SEQ 1 INANPNVDPN ANPNANPNAN PNVDPNANPE L  
=====

HITS AT: 2-21

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

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L5 ANSWER 10 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **401460-45-5** REGISTRY

CN L-Threonine, glycyl-L-isoleucyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutamyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteinyl-L-seryl-L-valyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 78: PN: WO0213765 SEQID: 24 claimed sequence

SQL 22

SEQ 1 GIEYLNKIQN SLSTEWSPCS VT

=====

HITS AT: 2-22

REFERENCE 1: 136:198912

L5 ANSWER 11 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **401460-29-5** REGISTRY

CN L-Proline, L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 25: PN: WO0214478 SEQID: 24 claimed sequence

CN 59: PN: WO0213765 SEQID: 5 claimed sequence

SQL 28

SEQ 1 NANPNVDPNA NPNANPNANP NVDPNANP

=====

HITS AT: 1-20

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

L5 ANSWER 12 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **401460-27-3** REGISTRY

CN L-Proline, L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 23: PN: WO0214478 SEQID: 22 claimed sequence

CN 57: PN: WO0213765 SEQID: 3 claimed sequence

SQL 20

SEQ 1 NANPNVDPNA NPNANPNANP

=====

HITS AT: 1-20

REFERENCE 1: 137:92286

REFERENCE 2: 136:215388

REFERENCE 3: 136:198912

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L5 ANSWER 13 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN 401460-26-2 REGISTRY

CN L-Proline, L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 22: PN: WO0214478 SEQID: 21 claimed sequence

CN 56: PN: WO0213765 SEQID: 2 claimed sequence

SQL 24

SEQ 1 NANPNVDPNA NPNANPNANP NVDP

HITS AT: 1-20

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

L5 ANSWER 14 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN 329019-45-6 REGISTRY

CN L-Lysine, N2,N6-bis[N2,N6-bis(L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutamyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteiny-L-seryl-L-valyl-L-threonyl)-L-lysyl]-L-lysyl-L-seryl-L-seryl-L-N6-[S-[2,3-bis[(1-oxohexadecyl)oxy]propyl]-N-(1-oxohexadecyl)-L-cysteinyl]-L-lysyl-L-seryl-L-lysyl-L-lysyl-L-lysyl- (9CI) (CA INDEX NAME)

CI MAN

SQL 204,58,49,48,48,1

SEQ 1 DPNANPNVDP NANPNVNANP NANPNANPEY LNKIQNSLST EWSPCSVTKK

51 SSKSKKKK

HITS AT: 29-48

SEQ 1 DPNANPNVDP NANPNVNANP NANPNANPEY LNKIQNSLST EWSPCSVTK

HITS AT: 29-48

SEQ 1 DPNANPNVDP NANPNVNANP NANPNANPEY LNKIQNSLST EWSPCSVT

HITS AT: 29-48

SEQ 1 DPNANPNVDP NANPNVNANP NANPNANPEY LNKIQNSLST EWSPCSVT

HITS AT: 29-48

SEQ 1 C

REFERENCE 1: 134:221126

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L5 ANSWER 15 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 208947-67-5 REGISTRY  
CN Circumsporozoite antigen (Plasmodium falciparum fragment) (9CI) (CA INDEX NAME)  
CI MAN  
SQL 126

SEQ 1 NANPNVDPNA NPNVDPNANP NVDPNANPNA NPNANPNANP NANPNANPNA  
=====

51 NPNANPNANP NANPNANPNA NPNANPNANP NANPNANPNA NPNANPNANP  
101 NANPNANPEW SPCSVTCGNG IQVRIK

HITS AT: 17-36

REFERENCE 1: 129:64049

L5 ANSWER 16 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 208946-20-7 REGISTRY  
CN L-Threonine, L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutamyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteinyl-L-seryl-L-valyl-, 1,1',1'',1'''-tetraamide with N2,N6-bis[N2,N6-bis[[(carboxymethyl)oxidoimino]methyl]-L-lysyl]-L-lysyl-L-tyrosine (9CI) (CA INDEX NAME)  
CI MAN  
SQL 200,49,49,49,49,3,1

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
=====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
=====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
=====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
=====

HITS AT: 30-49

SEQ 1 KKY

SEQ 1 K

REFERENCE 1: 129:66591

L5 ANSWER 17 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 208946-19-4 REGISTRY  
CN L-Threonine, L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-

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valyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutamyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteiny-L-seryl-L-valyl-, 1,1',1'',1'''-tetraamide with N2,N6-bis[N2,N6-bis[[ (carboxymethyl)oxidoimino]methyl]-L-lysyl]-L-lysyl-L-seryl-L-seryl-N6-[S-[2,3-bis[(1-oxohexadecyl)oxy]propyl]-N-(1-oxohexadecyl)-L-cysteiny]-L-lysyl-L-seryl-L-lysyl-L-lysyl-L-lysyl-L-lysine (9CI) (CA INDEX NAME)

CI MAN

SQL 208,49,49,49,10,1,1

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
= =====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
= =====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
= =====

HITS AT: 30-49

SEQ 1 GDPNANPNVD PNANPNVNAN PNANPNANPE YLNKIQNSLS TEWSPCSVT  
= =====

HITS AT: 30-49

SEQ 1 KKSSKSKKKK

SEQ 1 C

SEQ 1 K

REFERENCE 1: 129:66591

L5 ANSWER 18 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN 151113-09-6 REGISTRY

CN L-Threonine, L-.alpha.-glutamyl-L-tyrosyl-L-leucyl-L-asparaginyl-L-lysyl-L-isoleucyl-L-glutamyl-L-asparaginyl-L-seryl-L-leucyl-L-seryl-L-threonyl-L-.alpha.-glutamyl-L-tryptophyl-L-seryl-L-prolyl-L-cysteiny-L-seryl-L-valyl- (9CI) (CA INDEX NAME)

OTHER NAMES:

CN 166: PN: WO0213765 SEQID: 148 claimed sequence

CN 60: PN: WO0214478 SEQID: 59 claimed sequence

SQL 20

SEQ 1 EYLNKIQNSL STEWSPCSVT  
=====

HITS AT: 1-20

REFERENCE 1: 136:215388

REFERENCE 2: 136:198912

REFERENCE 3: 134:221126

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REFERENCE 4: 129:148063

REFERENCE 5: 129:66591

REFERENCE 6: 127:204127

REFERENCE 7: 119:247465

L5 ANSWER 19 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **149121-48-2** REGISTRY

CN 207-404-Antigen CS (Plasmodium falciparum strain NF54 reduced),  
207-L-methionine-208-L-methionine-209-L-alanine-210-L-proline-400-  
glycine-401-L-proline-403-L-threonine-404-L-asparagine-,  
(404.fwdarw.1')-protein with antigen (hepatitis B virus subtype adw  
small surface reduced) (9CI) (CA INDEX NAME)

CI MAN

SQL 424

SEQ 1 MMAPDPNANP NANPNANPNA NPNANPNANP NANPNANPNA NPNANPNANP  
51 NANPNANPNA NPNANPNANP NANPNANPNK NNQGNGQGHN MPNDPNRNVD  
101 ENANANSVAVK NNNNEEPSDK HIKEYLNKIQ NSLSTEWSPC SVTCGNGIQV  
===== =====  
151 RIKPGSANKP KDEL DYANDI EKKICKMEKC SSVFNVVNSS IGLGPVTNME  
201 NITSGFLGPL LVLQAGFFLL TRILTIPQSL DSWWTSNLFL GGSPVCLGQN  
251 SQSPTSNHSP TSCPPICPGY RWMCLRRFII FLFILLCLI FLLVLLDYQG  
301 MLPVCPLIPG STTTNTGPCK TCTTPAQNS MFPSCCCTKP TDGNCTCIPI  
351 PSSWAFAYL WEWASVRFSW LSLLVPFVQW FVGLSPTVWL SAIWMMWYWG  
401 PSLYSIVSPF IPLLPFIFFCL WVYI

HITS AT: 124-143

REFERENCE 1: 119:93517

L5 ANSWER 20 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **140877-00-5** REGISTRY

CN Antigen R 32NS181 (influenza virus-Plasmodium falciparum 212-amino  
acid synthetic) (9CI) (CA INDEX NAME)

CI MAN

SQL 212

SEQ 1 MDPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
51 PNANPNANPN ANPNVDPNAN PNANPNANPN ANPNANPNAN PNANPNANPN  
= =====  
101 ANPNANPNAN PNANPNANPN ANPNANPNVD PNTVSSFQVD CFLWHVRKRV  
151 ADQELGDAPF LDRLRRDQKS LRGRGSTLGL DIETATRAGK QIVERILKEE  
201 SDEALKMTML VN

HITS AT: 60-79

REFERENCE 1: 116:233694

L5 ANSWER 21 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN **125854-16-2** REGISTRY

CN Antigen CS (Plasmodium falciparum strain NF54 reduced) (9CI) (CA  
INDEX NAME)

CI MAN

SQL 409

SEQ 1 MMRKLAILSV SSFLFVEALF QEYQCYGSSS NTRVLNELNY DNAGTNLYNE  
51 LEMNYYGKQE NWYSLKKNSR SLGENDDGNN EDNEKLRKPK HKKLKQPADG

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101 NPDNPANPNV DPNANPNVDP NANPNVDPNA NPNANPNANP NANPNANPNA  
=====

151 NPNANPNANP NANPNANPNA NPNANPNANP NANPNANPNA NPNANPNANP  
201 NANPNANPNV DPNANPNANP NANPNANPNA NPNANPNANP NANPNANPNA  
=====

251 NPNANPNANP NANPNANPNA NPNANPNANP NANPNKNNQG NGQGHNMPPND  
301 PNRNVDPAN ANSAVKNNNN EEP SDKHIKE YLNKIQNSLS TEWSPCSVTC  
=====

351 GNGIQVRIKP GSANKPKDEL DYANDIEKKI CKMEKCSSVF NVVNSSIGLI  
401 MVLSFLFLN

HITS AT: 121-140, 205-224, 330-349

REFERENCE 1: 112:152771

L5 ANSWER 22 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 122156-87-0 REGISTRY  
CN 129-259-Antigen CS (Plasmodium falciparum clone 7G8 surface  
reduced), 129-L-methionine-257-L-valine-258-L-aspartic acid- (9CI)  
(CA INDEX NAME)  
CI MAN  
SQL 131

SEQ 1 MDPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
51 PNANPNANPN ANPNVDPAN PNANPNANPN ANPNANPNAN PNANPNANPN  
=====

101 ANPNANPNAN PNANPNANPN ANPNANPNVD P

HITS AT: 60-79

REFERENCE 1: 111:84065

L5 ANSWER 23 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 117924-89-7 REGISTRY  
CN 126-261-Antigen CS (Plasmodium falciparum clone 7G8 surface  
reduced), 129-L-methionine-257-L-valine-258-L-aspartic  
acid-260-L-leucine-261-L-arginine-, (261.fwdarw.4')-protein with  
44-L-arginine-53-L-aspartic acid-60-L-alanine-82-L-leucine-83-L-  
valine-84-L-asparagine-4-84-protein NS 1 (influenza virus A/FM/1/47  
reduced) (9CI) (CA INDEX NAME)  
CI MAN  
SQL 220

SEQ 1 MDPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
51 PNANPNANPN ANPNANPNVD PNANPNANPN ANPNANPNAN PNANPNANPN  
=====

101 ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNVDPN TVSSFQVDCF  
151 LWHVRKRVD QELGDAPFLD RLRRDQKSLR GRGSTLGLDI ETATRAGQI  
201 VERILKEESD EALKMTMLVN

HITS AT: 64-83

REFERENCE 1: 110:5809

L5 ANSWER 24 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 117924-88-6 REGISTRY  
CN 129-261-Antigen CS (Plasmodium falciparum clone 7G8 surface  
reduced), 129-L-methionine-257-L-valine-258-L-aspartic  
acid-260-L-leucine-261-L-arginine- (9CI) (CA INDEX NAME)  
CI MAN  
SQL 125

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SEQ 1 MDPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
51 PNANPNANPN VDPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN

=====

101 ANPNANPNAN PNANPNANPN VDPLR

HITS AT: 56-75

REFERENCE 1: 111:84065

REFERENCE 2: 110:13419

L5 ANSWER 25 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN 116111-20-7 REGISTRY

CN L-Alanine, N2-[(9H-fluoren-9-ylmethoxy)carbonyl]-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl- (9CI) (CA INDEX NAME)

CI MAN

SQL 38

SEQ 1 NVDPNANPNV DPNANPNVDP NANPNANPNA NPNANPNA

=====

HITS AT: 13-32

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

REFERENCE 1: 109:129704

L5 ANSWER 26 OF 29 REGISTRY COPYRIGHT 2002 ACS

RN 116111-16-1 REGISTRY

CN L-Alanine, L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-valyl-L-.alpha.-aspartyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl-L-alanyl-L-asparaginyl-L-prolyl-L-asparaginyl- (9CI) (CA INDEX NAME)

CI MAN

SQL 38

SEQ 1 NVDPNANPNV DPNANPNVDP NANPNANPNA NPNANPNA

=====

HITS AT: 13-32

\*\*RELATED SEQUENCES AVAILABLE WITH SEQLINK\*\*

REFERENCE 1: 117:249667

REFERENCE 2: 115:90072

REFERENCE 3: 109:129704

L5 ANSWER 27 OF 29 REGISTRY COPYRIGHT 2002 ACS

Searcher : Shears 308-4994

09/931325

RN 96281-87-7 REGISTRY  
CN 91-340-Antigen CS (Plasmodium falciparum clone 7G8 surface reduced)  
(9CI) (CA INDEX NAME)  
CI MAN  
SQL 250

SEQ 1 KPKHKKLKQP GDGNPDPNAN PNVDPNANPN VDPNANPNVD PNANPNANPN  
===== =====  
51 ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
=====  
101 PNVDPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN  
===== =====  
151 ANPNANPNAN PNANPNANPN ANPNANPNAN PNKNNQGNGQ GHNMPNDPNR  
201 NVDENANANN AVKNNNNNEEP SDKHIEQYLK KIKNSISTEW SPCSVTCGNG

HITS AT: 34-53, 98-117

REFERENCE 1: 102:198973

L5 ANSWER 28 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 92480-14-3 REGISTRY  
CN Antigen CS (Plasmodium falciparum clone 7G8 surface reduced) (9CI)  
(CA INDEX NAME)  
CI MAN  
SQL 396

SEQ 1 EALFQEYQCY GSSSNTRVLN ELNYDNAGTN LYNELEMNYY GKQENWYSLK  
51 KNSRSLGEND DGNNNNGDNG REGKDEDKRD GNNEDNEKLR KPKHKKLKQP  
101 GDGNPDPNAN PNVDPNANPN VDPNANPNVD PNANPNANPN ANPNANPNAN  
===== =====  
151 PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN PNVDPNANPN  
===== =====  
201 ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
===== =====  
251 PNANPNANPN ANPNANPNAN PNKNNQGNGQ GHNMPNDPNR NVDENANANN  
301 AVKNNNNNEEP SDKHIEQYLK KIKNSISTEW SPCSVTCGNG IQVRIKPGSA  
351 NKPKDEL DYE NDIEKKICKM EKCSSVFNVV NSSIGLIMVL SFLFLN

HITS AT: 124-143, 188-207

REFERENCE 1: 102:198973

REFERENCE 2: 101:164640

L5 ANSWER 29 OF 29 REGISTRY COPYRIGHT 2002 ACS  
RN 92480-13-2 REGISTRY  
CN Antigen CS (Plasmodium falciparum clone 7G8 surface precursor  
reduced) (9CI) (CA INDEX NAME)  
CI MAN  
L 412

SEQ 1 MMRKLAILSV SSFLFVEALF QEYQCYGSSS NTRVLNELNY DNAGTNLYNE  
51 LEMNYYGKQE NWYSLKKNSR SLGENDDGNN NNGDNGREGK DEDKRDGNNE  
101 DNEKLRKPKH KKLKQPGDGN PDPNANPNVD PNANPNVDPN ANPNVDPNAN  
===== =====  
151 PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN PNANPNANPN  
===== =====  
201 ANPNANPNVD PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNAN  
===== =====  
251 PNANPNANPN ANPNANPNAN PNANPNANPN ANPNANPNKN NQGNGQGHNM

09/931325

301 PNDPNRNVDE NANANNAVKN NNNEEPSDKH IEQYLKKIKN SISTEWSPCS  
351 VTCGNGIQVR IKPGSANKPK DELDYENDIE KKICKMEKCS SVFNVVNSSI  
401 GLIMVLSFLF LN

HITS AT: 140-159, 204-223

REFERENCE 1: 110:34817

REFERENCE 2: 102:198973

REFERENCE 3: 101:164640

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